

Serial No. 10/617,997
60130-1627; 02MRA0559

IN THE SPECIFICATION

Please amend paragraph 3 as shown below.

One example of an axle housing that requires a significant amount of lubricant is an inverted portal drive axle housing. In an inverted portal drive axle, the shaft and drive hub rotate about different axes spaced a distance apart. This configuration allows a vehicle floor to be much lower than would otherwise be possible with conventionally configured axles. Typically, an inverted portal drive axle includes a drive mechanism disposed on one end of ~~the an~~ axle housing and a drop gearbox at both ends ~~on either end~~ immersed in lubricant. Lubricant must cover the drive mechanism and helical gears included in the drop gearbox to a required depth. The entire hollow interior of the housing must be filled with lubricant in order to obtain a proper level at the drive mechanism and both drop gearboxes. Much of the lubricant included within the housing is not in contact or near the drive mechanism. A large amount of lubricant is simply provided to ensure that a proper level of lubricant is present at the drive mechanism and drop gearboxes. Accordingly, much of the lubricant contained in the housing is not near the drive mechanism, ~~drop~~ drop gearboxes, or the bearing assemblies and is present only to ensure the proper level of lubricant across the housing and in specific critical areas.

Please amend paragraph 4 as shown below.

Typically, an inverted portal drive axle housing contains approximately 25 to 27 liters of lubricant to attain the proper level relative to the drive mechanism. This oil is periodically changed in order ensure that the desired lubrication properties are maintained within specified parameters. The lubricant removed from the axle housing during an oil change must be disposed. The sheer quantity of lubricant required to fill an axle housing causes disposal problems and increases operation and maintenance costs.

Please amend paragraph 5 as shown below.

Accordingly, it is desirable to develop an axle assembly that reduces the amount of required lubricant while maintaining sufficient levels for proper lubrication of the drive mechanism drop gear boxes and the bearing assemblies.

Serial No. 10/617,997
60130-1627; 02MRA0559

Please amend paragraph 6 as shown below.

An embodiment of this invention is an axle housing including web structures defining an internal chamber containing lubricant, and limiting the lubricant to ~~only in critical~~ areas requiring lubrication.

Please amend paragraph 8 as shown below.

The axle housing includes an internal cavity that runs the entire length of the axle housing from a first end to a second end. The web members are disposed at each end to define the lubricant containment chambers. The remaining areas within the axle housing do not receive lubricant and remain dry. Typically, an inverted portal drive axle assembly requires approximately 25 to 27 liters of lubricant, much of this lubricant dispersed in sections not requiring lubrication. The containments chambers defined within the axle housing assembly of this invention reduce the amount of required lubricant to approximately 17 to 19 liters.

Please amend paragraph 15 as shown below.

The axle ~~housing assembly~~ 10 of this invention is an inverted portal drive axle having the shafts 11,12 rotating about a first axis 34 and a drop gearbox 32 with an output member rotating about a second axis 36. The first and second axes 34, 36 are disposed parallel to each other and are spaced apart a distance 38. The drive mechanism 16 is preferably a gearbox that transmits torque from a drive shaft to the ~~axle~~ shafts 11,12. The ~~axle~~ shafts 11,12 transmit torque from the drive mechanism 16 to the drop gearboxes 32. A drop gearbox 32 is disposed at first and second ends 26,28 of the housing 14. The specific configuration of the drive mechanism is as known to worker skilled in the art. The lower profile of the axle housing 14 allows the floor of a vehicle to be lowered below a driven wheel. Inverted portal drive axles are most often used in mass transit vehicles to allow the use of a lowered floor in order to aid entry and exit of passengers. As appreciated, the inverted portal drive axle is just one example of an axle housing configurations that may benefit from this invention.

Serial No. 10/617,997
60130-1627; 02MRA0559

Please amend paragraph 16 as shown below.

The web members 22 define the lubricant containment chambers 30 at the drive mechanism 16 and the bearing assemblies 40 disposed at distal ends of the housing 14. The web members 22 are preferably an integrally cast part of the housing 14. Each web member 22 is a plate dividing a portion of the hollow interior of the housing 14. The web members 22 are positioned relative to the area within the housing 14 that requires lubricant. The containment chambers 30 defined by the web members 22 reduce the amount of lubricant required to obtain required lubricant levels for lubrication of the drive mechanism 16 and bearings assemblies 40. Still, as can be appreciated from Figure 1, the containment chambers 30 extend to be vertically above shaft 12 such that lubricant will be above the shaft to lubricate the drive mechanism 16.

Please amend paragraph 17 as shown below.

Referring to Figure 2, the web member 22 includes a shaft seal 24 surrounding each shaft 11,12. The shafts 11,12 extend through the web member 22 to the drive mechanism 16 (Figure 1). The drive mechanism 16 rotates the shaft 12. The seal 24 prevents lubricant from migrating past the web member 22 into the dry center section 18 of the housing 14. As is also clear, the web member 22 and an opening that allows the shaft 11 to pass, surrounds the shaft 11. As is also clear, the web extends completely between the inner walls of housing 14.

Please amend paragraph 19 as shown below.

Axle assemblies designed according to this invention reduce the amount of lubricant 42 required to lubricate the drive mechanisms 16, drop ~~gearbox~~ gearboxes 32, and bearing assemblies that support rotation of the axle shafts 12. The web members 22 define the lubricant containment chambers 30 within the housing 14 such that only a portion of the housing contains lubricant. This feature reduces the amount of lubricant 42 by confining lubricant 42 to these portions of the housing 14 requiring lubrication.